

This listing of claims will replace all prior versions, and listings of claims in the application:

Amendments to the Claims:

Please cancel claims 12-13, 15-18 and 25-36 without prejudice and amend claims 3-11, 14, 19-20 and 23 to read as follows. All claims pending, including those unchanged by the present amendment, are reproduced below for the convenience of the Examiner.

1. (Original) A compound of the formula (I):



wherein:

A is selected from the group consisting of:

-C₁₋₆alkyl and -C₃₋₈cycloalkyl;

phenyl, which is substituted with 0-2 R¹ groups;

naphthyl, which is substituted with 0-2 R¹ groups; and

a 3-10 membered aromatic or non-aromatic heterocyclic ring system which may be a monocyclic ring system or a fused bicyclic ring system, wherein the heterocyclic ring system contains 1-4 heteroatoms selected from N, O and S and is substituted with 0-2 R¹ groups;

R¹ is independently selected from the group consisting of:

Halo, -CN, -C(=O)-N(R², R³), -NO₂, -SO₂N(R², R³), -SO₂R², -(CH₂)_mNR²R³, -(CH₂)_m-C(=NR³)-R², -(CH₂)_m-C(=NR²)-N(R², R³), -(CH₂)_m-N(R²)-C(=NR²)-N(R², R³), -(CH₂)_mNR²-C₃₋₆heterocyclics, C₁₋₄alkyl, C₂₋₆alkenyl, C₂₋₆alkynyl, C₃₋₈cycloalkyl, C₀₋₄alkylC₃₋₈cycloalkyl, -CF₃, -OR², and a 5-6 membered heterocyclic system containing

from 1-4 heteroatoms selected from N, O and S, wherein from 1-4 hydrogen atoms on the heterocyclic system may be independently replaced with a member selected from the group consisting of halo, C₁-C₄-alkyl, -CN, C₁₋₄alkyl, C₂₋₆alkenyl, C₂₋₆alkynyl, C₃₋₈cycloalkyl, C₀₋₄alkylC₃₋₈cycloalkyl and -NO₂;

R² and R³ are independently selected from the group consisting of:

-H, -C₁₋₆alkyl, -C₁₋₆alkyloxy, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₆alkylC₃₋₈cycloalkyl and -C₀₋₆alkyl-(carbocyclic aryl), wherein from 0-4 hydrogen atoms on the ring atoms of the carbocyclic aryl moiety may be independently replaced with a member selected from the group consisting of halo, -C₁₋₄alkyl, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₄alkylC₃₋₈cycloalkyl, -S(=O)₂-OH, -CN, -CF₃ and -NO₂;

m is an integer of 0-2;

Q is selected from the group consisting of:

a direct link, divalent -C₁₋₄alkyl, divalent -C₂₋₄alkenyl, divalent -C₂₋₄alkynyl, -C(=O)-, -C(=NH)-, -C(=NMe)-, -NH-C(=NH)-, -NH-C(=NMe)-, -N(-R⁴)-, -N(-R⁴)-CH₂-, -C(=O)-N(-R⁴)-, -N(-R⁴)-C(=O)-, -S(=O)₂-, -O-, -S(=O)₂-N(-R⁴)- and -N(-R⁴)-S(=O)₂-, wherein one or more hydrogens on each of the divalent C₁₋₄alkyl, divalent C₂₋₄alkenyl and divalent C₂₋₄alkynyl moieties can be replaced with a -R⁴ group;

R⁴ is selected from the group consisting of:

-H, -C₁₋₆alkyl, -C₁₋₆alkyloxy, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₆alkylC₃₋₈cycloalkyl and -C₀₋₆alkyl-(carbocyclic aryl), wherein from 0-4 hydrogen atoms on the ring atoms of the carbocyclic aryl moiety may be independently replaced with a member selected from the group consisting of halo, -C₁₋₄alkyl, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₄alkylC₃₋₈cycloalkyl, -S(=O)₂-OH, -CN, -CF₃ and -NO₂;

D is selected from the group consisting of:

a direct link;

phenyl, which is substituted with 0-2 R^{1a} groups; and

a 5-10 membered aromatic or non-aromatic heterocyclic ring system which may be a monocyclic ring system or a fused bicyclic ring system, wherein the heterocyclic ring system contains 1-4 heteroatoms selected from N, O and S and the ring system is substituted with 0-2 R^{1a} groups;

R^{1a} is independently selected from the group consisting of:

halo, -C₁₋₆alkyl, -C₁₋₆alkyloxy, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₆alkylC₃₋₈cycloalkyl, -S(=O)₂-OH, -CN, -NO₂, -(CH₂)_n-N(-R^{2a}, -R^{3a}), -S(=O)₂-N(-R^{2a}, -R^{3a}), -S(=O)₂-R^{2a}, -CF₃, -(CH₂)_n-OR^{2a}, -C(=O)-O-R^{2a}, -C(=O)-N(-R^{2a}, -R^{3a}), -C(=NH)-N(-R^{2a}, -R^{3a}), -C(=NMe)-N(-R^{2a}, -R^{3a}), 2-imidazolin-2-yl, 1-methyl-2-imidazolin-2-yl and a 5-6 membered aromatic heterocyclic ring containing 1-4 heteroatoms selected from N, O and S and -C₀₋₆alkyl-(carbocyclic aryl), wherein from 0-4 hydrogen atoms on the ring atoms of the aromatic heterocyclic ring and the carbocyclic aryl moiety may be independently replaced with a member selected from the group consisting of halo, -C₁₋₄alkyl, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₄alkylC₃₋₈cycloalkyl, -CN, -CF₃ and -NO₂;

n is an integer of 0-2;

R^{2a} and R^{3a} are independently selected from the group consisting of:

-H, -C₁₋₆alkyl, -C₁₋₆alkyloxy, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₆alkylC₃₋₈cycloalkyl and -C₀₋₆alkyl-(carbocyclic aryl), wherein from 0-4 hydrogen atoms on the ring atoms of the carbocyclic aryl moiety may be independently replaced

with a member selected from the group consisting of halo, -C₁₋₄alkyl, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₄alkylC₃₋₈cycloalkyl, -S(=O)₂-OH, -CN, -CF₃ and -NO₂;

E is selected from the group consisting of:

a direct link, -(CH₂)_q-C(=O)-, -(CH₂)_q-N(-R⁵)-C(=O)-(CH₂)_x-,
-(CH₂)_q-C(=O)-N(-R⁵)-(CH₂)_x-, -(CH₂)_q-N(-R⁵)-(CH₂)_x-, , -(CH₂)_q-N(R⁵)CO-NR⁶(CH₂)_x
and -SO₂-;

q and x are independently an integer of 0-2;

R⁵ and R⁶ are independently selected from the group consisting of:

-H, -C₁₋₆alkyl, -C₁₋₆alkyloxy, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl,
-C₀₋₆alkylC₃₋₈cycloalkyl, -C₁₋₄alkyl-C(=O)-OH, -C₀₋₆alkyl-(carbocyclic aryl),
-C₀₋₄alkyl-(monocyclic heteroaryl) and -C₁₋₄alkyl-C(=O)-O-C₁₋₄alkyl, wherein from 0-4
hydrogen atoms on the ring atoms of the carbocyclic aryl moiety and the monocyclic
heteroaryl moieties may be independently replaced with a member selected from the
group consisting of halo, -C₁₋₄alkyl, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -
C₀₋₄alkylC₃₋₈cycloalkyl, -S(=O)₂-OH, -CN, -CF₃ and -NO₂;

G is selected from the group consisting of:

phenyl, which is substituted with 0-2 R^{1b} groups; and

a 5-6 membered aromatic heterocyclic ring containing 1-4 hetero atoms selected from N,
O and S wherein the heterocyclic ring is substituted with 0-2 R^{1b} groups;

R^{1b} is independently selected from the group consisting of:

halo, -C₁₋₆alkyl, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₆alkylC₃₋₈cycloalkyl,
-C₁₋₄alkyl-C(=O)-OH, -CN, -NO₂, -S(=O)₂-OH, -N(-R^{2b}, -R^{3b}), -C(=O)-N(-R^{2b}, -R^{3b}), -
S(=O)₂-N(-R^{2b}, -R^{3b}), -S(=O)₂-R^{2b}, -CF₃, -O-R^{2b}, -O-CH₂-CH₂-O-R^{2b},

$-O-CH_2-C(=O)-O-R^{2b}$, $-N(-R^{2b})-CH_2-CH_2-O-R^{2b}$, $-N(-CH_2-CH_2-O-R^{2b})_2$,
 $-N(-R^{2b})-C(=O)-R^{3b}$, $-N(-R^{2b})-S(=O)_2-R^{3b}$, and a 5-6 membered heterocyclic ring
containing 1-4 heteroatoms selected from N, O and S substituted with 0-4 $R^{1b'}$ groups;

alternatively, when two R^{1b} may be present on adjacent ring atoms of G and combine to
form a benzene ring substituted with 0-4 $R^{1b'}$ groups or a 5-6 membered aromatic or non-
aromatic heterocyclic ring having 1-3 heteroatoms selected from N, O and S substituted
with 0-4 $R^{1b'}$ groups;

in a second alternative, one of the R^{1b} groups of G can cyclize with the $-N-R^5$ group of E
to form a 5-7 membered heterocyclic ring containing 1-4 heteroatoms selected from N, O
and S, which is substituted with 0-4 $R^{1b'}$ groups, wherein two of the $R^{1b'}$ groups attached to
the same ring carbon may form a $(=O)$ group;

R^{2b} and R^{3b} are independently selected from the group consisting of:

$-H$, $-C_{1-6}alkyl$, $-C_{1-6}alkyloxy$, $-C_{2-6}alkenyl$, $-C_{2-6}alkynyl$, $-C_{3-8}cycloalkyl$,
 $-C_{0-6}alkylC_{3-8}cycloalkyl$ and $-C_{0-6}alkyl-(carbocyclic\ aryl)$, wherein from 0-4 hydrogen
atoms on the ring atoms of the carbocyclic aryl moiety may be independently replaced
with a member selected from the group consisting of halo, $-C_{1-4}alkyl$, $-C_{2-6}alkenyl$, $-C_{2-6}alkynyl$, $-C_{3-8}cycloalkyl$, $-C_{0-4}alkylC_{3-8}cycloalkyl$, $-S(=O)_2-O^-$, $-CN$, $-CF_3$ and $-NO_2$;

$R^{1b'}$ is independently selected from the group consisting of:

halo, $-C_{1-6}alkyl$, $-C_{2-6}alkenyl$, $-C_{2-6}alkynyl$, $-C_{3-8}cycloalkyl$, $-C_{0-6}alkylC_{3-8}cycloalkyl$,
 $-C_{1-4}alkyl-C(=O)-OH$, $-CN$, $-NO_2$, $-S(=O)_2-OH$, $-N(-R^{2b'})$, $-R^{3b'}$, $-C(=O)-N(-R^{2b'})$, $-R^{3b'}$,
 $-S(=O)_2-N(-R^{2b'})$, $-R^{3b'}$, $-S(=O)_2-R^{2b'}$, $-CF_3$, $-O-R^{2b'}$, $-O-CH_2-CH_2-O-R^{2b'}$,
 $-O-CH_2-C(=O)-O-R^{2b'}$, $-N(-R^{2b'})-CH_2-CH_2-O-R^{2b'}$, $-N(-CH_2-CH_2-O-R^{2b'})_2$,
 $-N(-R^{2b'})-C(=O)-R^{3b'}$ and $-N(-R^{2b'})-S(=O)_2-R^{3b'}$;

R^{2b'} and R^{3b'} are independently selected from the group consisting of:

-H, -C₁₋₆alkyl, -C₁₋₆alkoxy, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₆alkylC₃₋₈cycloalkyl and -C₀₋₆alkyl-(carbocyclic aryl), wherein from 0-4 hydrogen atoms on the ring atoms of the carbocyclic aryl moiety may be independently replaced with a member selected from the group consisting of halo, -C₁₋₄alkyl, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₄alkylC₃₋₈cycloalkyl, -S(=O)₂-OH, -CN, -CF₃ and -NO₂;

J is selected from the group consisting of:

a direct link, -S(=O)₂-, -C(=O)-, -N(R⁷)-S(=O)₂-, -C(=O)-N(R⁷)-S(=O)₂-, -C(=O)-N(R⁷)-(CH₂)_y-, -S(=O)₂-N(R⁷)-(CH₂)_y-, and -N(R⁷)-C(=O)-(CH₂)_y-;

y is an integer of 0-2;

R⁷ is selected from the group consisting of:

-H, -C₂₋₄alkyl, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₆alkylC₃₋₈cycloalkyl, -C₁₋₆alkyl-C(=O)-OH, -C₁₋₆alkyl-OH, -C₁₋₆alkyl-O-C₁₋₄alkyl, -C₀₋₄alkyl-(carbocyclic aryl), -C₀₋₄alkyl-(monocyclic or bicyclic heterocyclic ring system having from 0-4 heteroatoms selected from the group consisting of N, O and S), -CH₂-C(=O)-O-C₁₋₄alkyl and -CH₂-C(=O)-O-C₁₋₄alkyl-(carbocyclic aryl), wherein from 0-4 hydrogen atoms on the ring atoms of the carbocyclic aryl moiety or the heterocyclic ring system may be independently replaced with a member selected from the group consisting of halo, -C₁₋₄alkyl, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₄alkylC₃₋₈cycloalkyl, -S(=O)₂-OH, -CN, -CF₃ and -NO₂;

X is a member selected from the group consisting of:

phenyl, which is substituted with 0-3 R^{1c} groups;

naphthyl, which is substituted with 0-3 R^{1c} groups;

a 6-membered heteroaromatic ring containing from 1-2 nitrogen atoms, wherein the ring is substituted with 0-3 R^{1c} groups; and

a fused heterobicyclic ring system, wherein the ring system contains 1-3 heteroatoms selected from N, O and S and is substituted with 0-3 R^{1c} groups;

R^{1c} is independently selected from the group consisting of:

halo, -CF₃, -C₁₋₆alkyl, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₆alkylC₃₋₈cycloalkyl, -C₁₋₄alkyl-C(=O)-OH, -CF₃, -CN, -NO₂, -(CH₂)_z-N(-R^{2c}, -R^{3c}), -C(=O)-N(-R^{2c}, -R^{3c}), -C(=NH)-N(-R^{2c}, -R^{3c}), -C(=NMe)-N(-R^{2c}, -R^{3c}), -S(=O)₂-N(-R^{2c}, -R^{3c}), -S(=O)₂-R^{2c}, -S(=O)₂-OH, -CF₃, -O-R^{2c}, -O(-CH₂)_z-O-R^{2c}, -O(-CH₂)_z-C(=O)-O-R^{2c}, -N(-R^{2c}), -O(-CH₂)_z-O-R^{2c}, -N[(-CH₂)_z-O-R^{2c}]₂, -(CH₂)_z-N(-R^{2c})-C(=O)-R^{3c}, -(CH₂)_z-N(-R^{2c})-S(=O)₂-R^{3c}, and a 5-6 membered heterocyclic ring containing 1-4 heteroatoms selected from N, O and S;

z is an integer of 0-4;

R^{2c} and R^{3c} are independently selected from the group consisting of:

-H, -C₁₋₆alkyl, -C₁₋₆alkyloxy, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₆alkylC₃₋₈cycloalkyl and -C₀₋₆alkyl-(carbocyclic aryl), wherein from 0-4 hydrogen atoms on the ring atoms of the carbocyclic aryl moiety may be independently replaced with a member selected from the group consisting of halo, -C₁₋₄alkyl, -C₂₋₆alkenyl, -C₂₋₆alkynyl, -C₃₋₈cycloalkyl, -C₀₋₄alkylC₃₋₈cycloalkyl, -S(=O)₂-OH, -CN, -CF₃ and -NO₂; and all pharmaceutically acceptable isomers, salts, hydrates, solvates and prodrug derivatives thereof.

2. (Original) A compound of claim 1, wherein:

A is selected from the group consisting of:

-C₁₋₆alkyl and -C₃₋₈cycloalkyl;

phenyl, which is substituted with 0-2 R¹ groups;

naphthyl, which is substituted with 0-2 R¹ groups; and

a 3-10 membered aromatic or non-aromatic heterocyclic ring system which may be a monocyclic ring system or a fused bicyclic ring system, wherein the heterocyclic ring system contains 1-4 heteroatoms selected from N, O and S and is substituted with 0-2 R¹ groups;

R¹ is independently selected from the group consisting of:

halo, -C₁₋₄alkyl, -CN, -NO₂, -(CH₂)_m-N(-R², -R³), -C(=O)-N(-R², -R³), -S(=O)₂-N(-R², -R³), -S(=O)₂-R², -(CH₂)_m-C(=NR³)-R², -(CH₂)_m-C(=NR²)-N(R², R³), -(CH₂)_m-N(R²)-C(=NR²)-N(R², R³), -CF₃, -(CH₂)_m-O-R² and a 5-6 membered aromatic heterocyclic ring containing 1-4 heteroatoms selected from N, O and S;

R² and R³ are independently selected from the group consisting of:

-H, -C₁₋₄alkyl and -C₀₋₄alkyl-(carbocyclic aryl);

m is an integer of 0-2;

Q is selected from the group consisting of:

a direct link, -C₁₋₄alkyl, -C₂₋₄alkenyl, -C₂₋₄alkynyl, -C(=O)-, -C(=NH)-, -C(=NMe)-, -N(-R⁴)-, -N(-R⁴)-CH₂-, -C(=O)-N(-R⁴)-, -N(-R⁴)-C(=O)-, -S(=O)₂-, -O-, -S(=O)₂-N(-R⁴)- and -N(-R⁴)-S(=O)₂-;

R⁴ is selected from the group consisting of:

-H, -C₁₋₄alkyl and -C₀₋₄alkyl-(carbocyclic aryl);

D is selected from the group consisting of:

a direct link;

phenyl, which is substituted with 0-2 R^{1a} groups; and

a 5-10 membered aromatic or non-aromatic heterocyclic ring system which may be a monocyclic ring system or a fused bicyclic ring system, wherein the heterocyclic ring system contains 1-4 heteroatoms selected from N, O and S and the ring system is substituted with 0-2 R^{1a} groups;

R^{1a} is independently selected from the group consisting of:

halo, -C₁₋₄alkyl, -CN, -NO₂, -(CH₂)_n-N(-R^{2a}, -R^{3a}), -S(=O)₂-N(-R^{2a}, -R^{3a}), -S(=O)₂-R^{2a}, -CF₃, -(CH₂)_n-OR^{2a}, -C(=O)-O-R^{2a}, -C(=O)-N(-R^{2a}, -R^{3a}) and a 5-6 membered aromatic heterocyclic ring containing 1-4 heteroatoms selected from N, O and S;

n is an integer of 0-2;

R^{2a} and R^{3a} are independently selected from the group consisting of:

-H, -C₁₋₄alkyl, and -C₁₋₄alkyl-(carbocyclic aryl);

E is selected from the group consisting of:

a direct link, -(CH₂)_q-C(=O)-, -(CH₂)_q-N(-R⁵)-C(=O)-(CH₂)_x-,
-(CH₂)_q-C(=O)-N(-R⁵)-(CH₂)_x-, -(CH₂)_q-N(-R⁵)-(CH₂)_x-, -(CH₂)_q-N(R⁵)CO-NR⁶(CH₂)_x-
and -SO₂-;

q and x are independently an integer of 0-2;

R⁵ and R⁶ are independently selected from the group consisting of:

-H, -C₁₋₄alkyl, -C₀₋₄alkyl-(carbocyclic aryl), -C₀₋₄alkyl-(monocyclic heteroaryl),
-C₁₋₄alkyl-C(=O)-OH and -C₁₋₄alkyl-C(=O)-O-C₁₋₄alkyl;

G is selected from the group consisting of:

phenyl, which is substituted with 0-2 R^{1b} groups; and

a 5-6 membered aromatic heterocyclic ring containing 1-4 hetero atoms selected from O, S and N, wherein the heterocyclic ring is substituted with 0-2 R^{1b} groups;

R^{1b} is independently selected from the group consisting of:

halo, -C₁₋₄alkyl, -CN, -NO₂, -N(-R^{2b}, -R^{3b}), -C(=O)-N(-R^{2b}, -R^{3b}), -S(=O)₂-N(-R^{2b}, -R^{3b}),
-S(=O)₂-R^{2b}, -CF₃, -O-R^{2b}, -O-CH₂-CH₂-O-R^{2b}, -O-CH₂-C(=O)-O-R^{2b},
-N(-R^{2b})-CH₂-CH₂-O-R^{2b}, -N(-CH₂-CH₂-O-R^{2b})₂, -N(-R^{2b})-C(=O)-R^{3b},
-N(-R^{2b})-S(=O)₂-R^{3b} and a 5-6 membered heterocyclic ring containing 1-4 heteroatoms selected from N, O and S;

alternatively, when two R^{1b} may be present on adjacent ring atoms of G and combine to form a benzene ring substituted with 0-4 R^{1b'} groups or a 5-6 membered aromatic or non-aromatic heterocyclic ring having 1-3 heteroatoms selected from N, O and S substituted with 0-4 R^{1b'} groups;

in a second alternative, one of the R^{1b} groups of G can cyclize with the -N-R⁵ group of E to form a 5-7 membered saturated, unsaturated or partially unsaturated heterocyclic ring containing 1-4 heteroatoms selected from N, O and S, which is substituted with 0-4 R^{1b'} groups, wherein two of the R^{1b'} groups attached to the same ring carbon may form a (=O) group;

R^{2b} and R^{3b} are independently selected from the group consisting of:

-H, $-C_{1-4}$ alkyl and $-C_{1-4}$ alkyl-(carbocyclic aryl);

R^{1b} is independently selected from the group consisting of:

halo, $-C_{1-4}$ alkyl, -CN, $-NO_2$, $-N(-R^{2b'}, -R^{3b'})$, $-C(=O)-N(-R^{2b'}, -R^{3b'})$, $-S(=O)_2-N(-R^{2b'}, -R^{3b'})$, $-S(=O)_2-R^{2b'}$, $-CF_3$, $-O-R^{2b'}$, $-O-CH_2-CH_2-O-R^{2b'}$, $-O-CH_2-C(=O)-O-R^{2b'}$, $-N(-R^{2b'})-CH_2-CH_2-O-R^{2b'}$, $-N(-CH_2-CH_2-O-R^{2b'})_2$, $-N(-R^{2b'})-C(=O)-R^{3b'}$, $-N(-R^{2b'})-S(=O)_2-R^{3b'}$;

$R^{2b'}$ and $R^{3b'}$ are independently selected from the group consisting of:

-H, $-C_{1-4}$ alkyl and $-C_{1-4}$ alkyl-(carbocyclic aryl);

J is selected from the group consisting of:

a direct link, $-S(=O)_2-$, $-C(=O)-$, $-N(-R^7)-S(=O)_2-$, $-C(=O)-N(-R^7)-S(=O)_2-$, $-C(=O)-N(-R^7)-(CH_2)_y-$, $-S(=O)_2-N(-R^7)-$, $-(CH_2)_y-$ and $-N(-R^7)-C(=O)-(CH_2)_y-$;

y is an integer of 0-2;

R^7 is selected from the group consisting of:

-H, $-C_{1-4}$ alkyl, $-C_{2-6}$ alkenyl, $-C_{2-6}$ alkynyl, $-C_{0-4}$ alkyl-(carbocyclic aryl), $-C_{0-4}$ alkyl-(heterocyclic ring system), $-CH_2-C(=O)-O-C_{1-4}$ alkyl and $-CH_2-C(=O)-O-C_{1-4}$ alkyl-(carbocyclic aryl);

X is selected from the group consisting of:

phenyl, which is substituted with 0-3 R^{1c} groups;

naphthyl, which is substituted with 0-3 R^{1c} groups;

a 6-membered heteroaromatic ring containing from 1-2 nitrogen atoms, wherein the ring is substituted with 0-3 R^{1c} groups; and

a fused heterobicyclic ring system, wherein the ring system contains 1-3 heteroatoms selected from N, O and S and is substituted with 0-3 R^{1c} groups;

R^{1c} is independently selected from the group consisting of:

halo, -C₁₋₄alkyl, -CN, -NO₂, -(CH₂)_z-N(-R^{2c}, -R^{3c}), -C(=O)-N(-R^{2c}, -R^{3c}), -C(=NH)-N(-R^{2c}, -R^{3c}), -C(=NMe)-N(-R^{2c}, -R^{3c}), -S(=O)₂-N(-R^{2c}, -R^{3c}), -S(=O)₂-R^{2c}, -S(=O)₂-O⁻, -CF₃, -O-R^{2c}, -O-CH₂-CH₂-O-R^{2c}, -O-CH₂-C(=O)-O-R^{2c}, -N(-R^{2c})-CH₂-CH₂-O-R^{2c}, -N(-CH₂-CH₂-O-R^{2c})₂, -(CH₂)_z-N(-R^{2c})-C(=O)-R^{3c}, -(CH₂)_z-N(-R^{2c})-S(=O)₂-R^{3c}, and a 5-6 membered heterocyclic ring containing 1-4 heteroatoms selected from N, O and S;

z is an integer of 0-2;

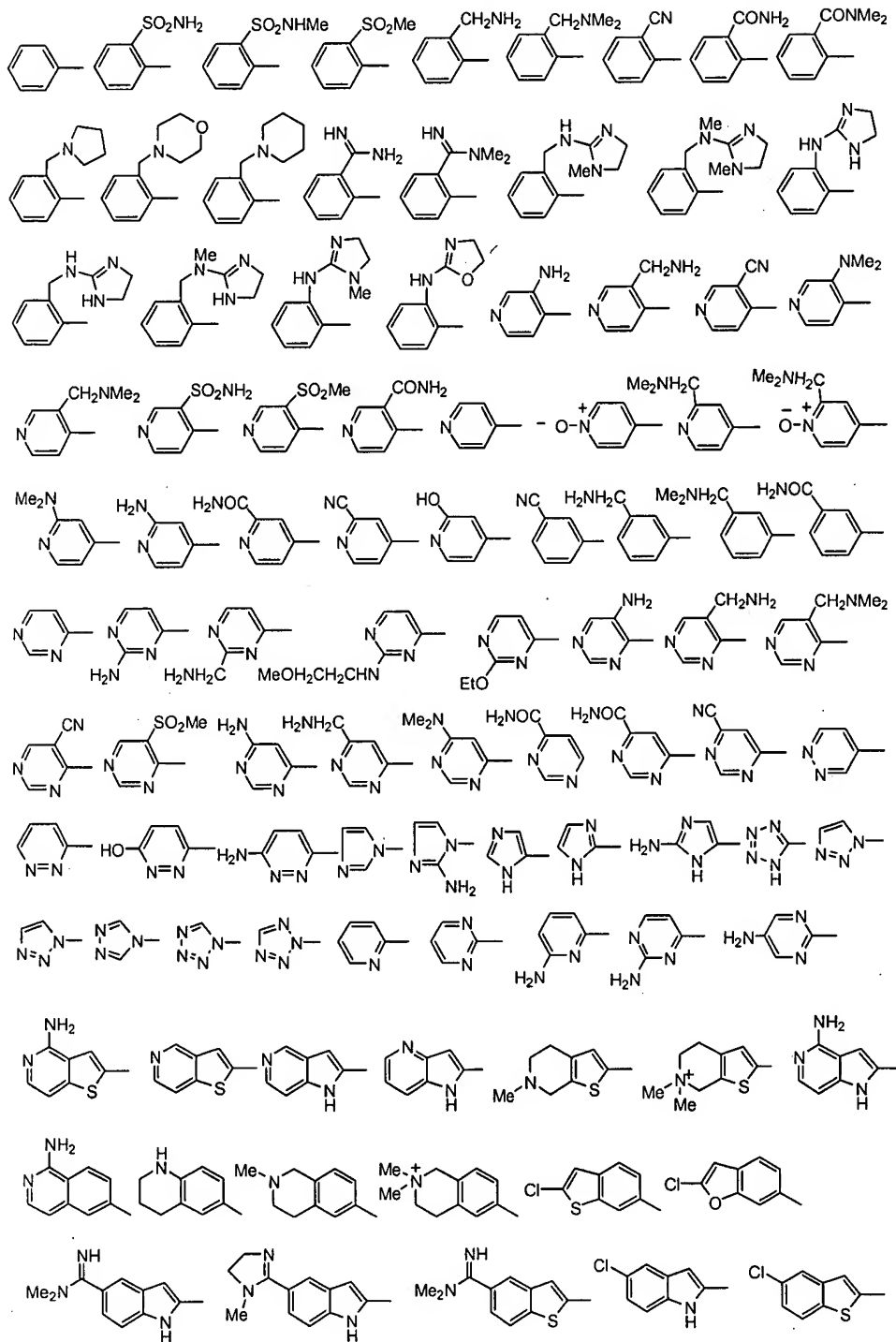
R^{2c} and R^{3c} are independently selected from the group consisting of:

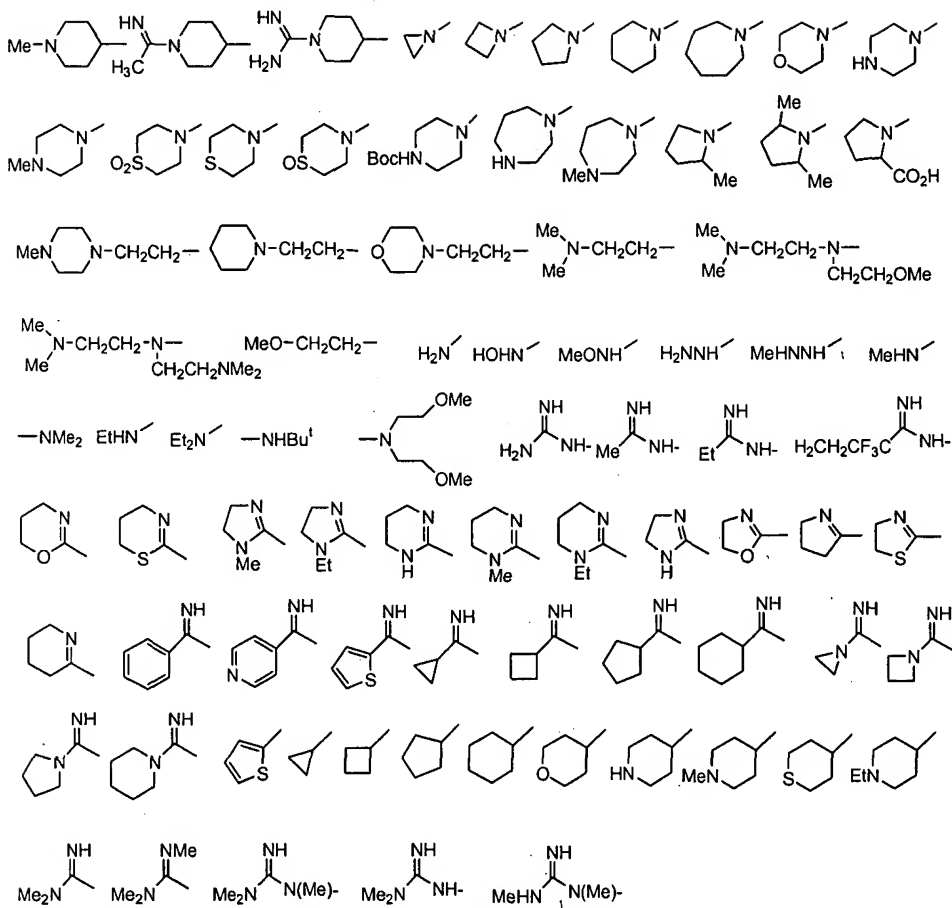
-H, -C₁₋₄alkyl and -C₁₋₄alkyl-(carbocyclic aryl);

and all pharmaceutically acceptable isomers, salts, hydrates, solvates and prodrug derivatives, thereof.

3. (Currently amended) A compound of claim 1, wherein:

A is selected from the group consisting of:

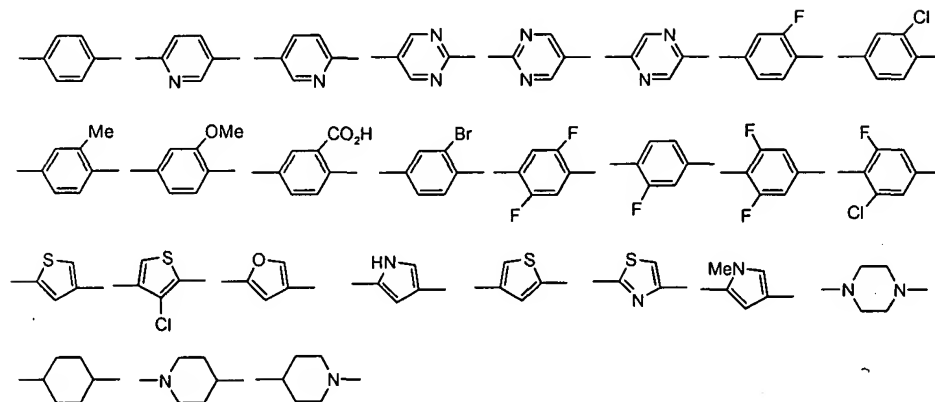




Q is selected from the group consisting of:

a direct link, -C(=NH), -C(=NMe)-, -C(=O)-, -CH₂-, -NH-, -N(-CH₃)-, -O-, -NH-CH₂-, -CH₂-NH-, -N(-CH₃)-CH₂-, and -CH₂-N(-CH₃)-

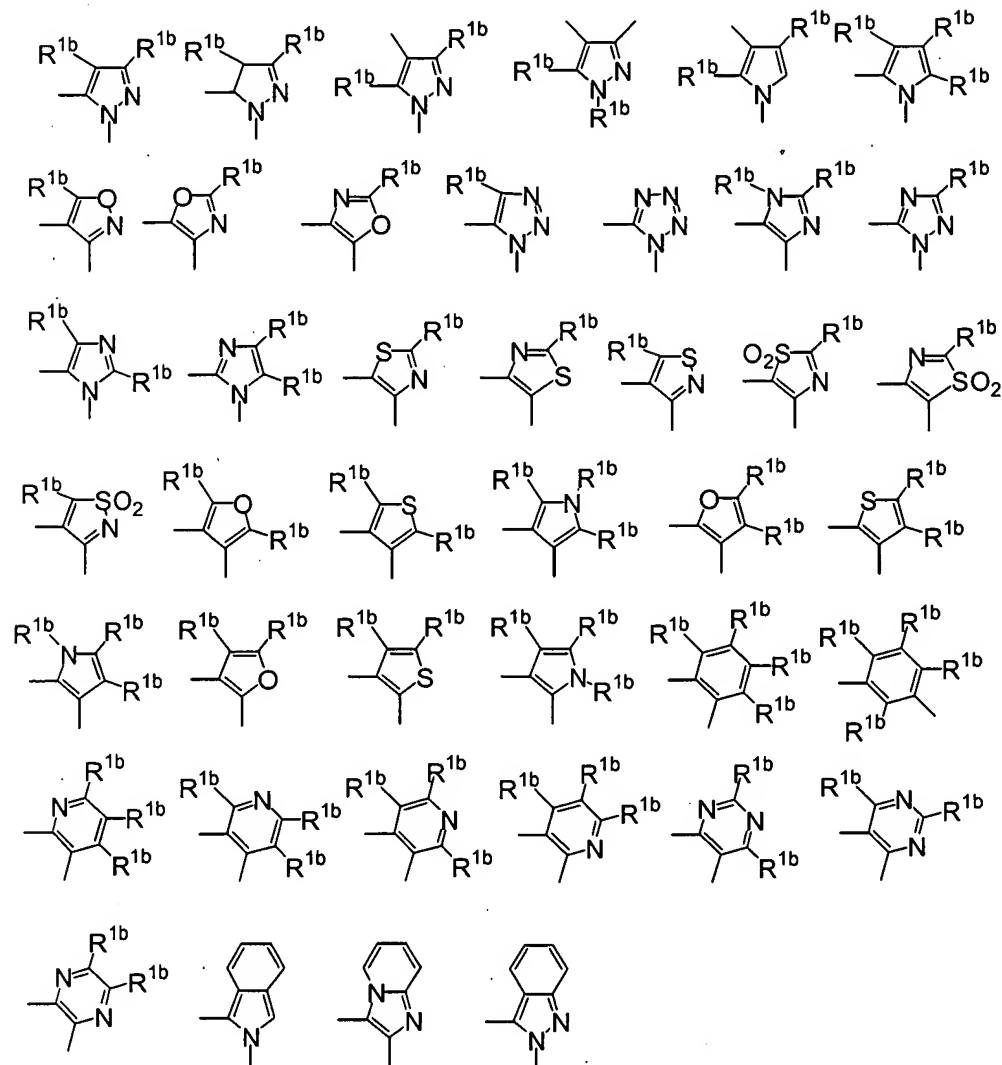
D is selected from the group consisting of:



E is selected from the group consisting of:

a direct link, -NH-C(=O)- , $\text{-N(-CH}_3\text{)-C(=O)-}$, $\text{-N(-CH}_2\text{CO}_2\text{H)-C(=O)-}$, -C(=O)-NH- , $\text{-C(=O)-N(-CH}_3\text{)-}$, $\text{-NH-CH}_2\text{-}$ and $\text{-CH}_2\text{-NH-}$;

G is a member selected from the group consisting of:



R^{1b} is selected from the group consisting of:

-H, -Me, -CF₃, -F, -Cl, -Br, -SO₂Me, -CN, -CONH₂, -CONMe₂, -NH₂, -NO₂, -NHCOMe, -NHSO₂Me, -CH₂NH₂ and -CO₂H;

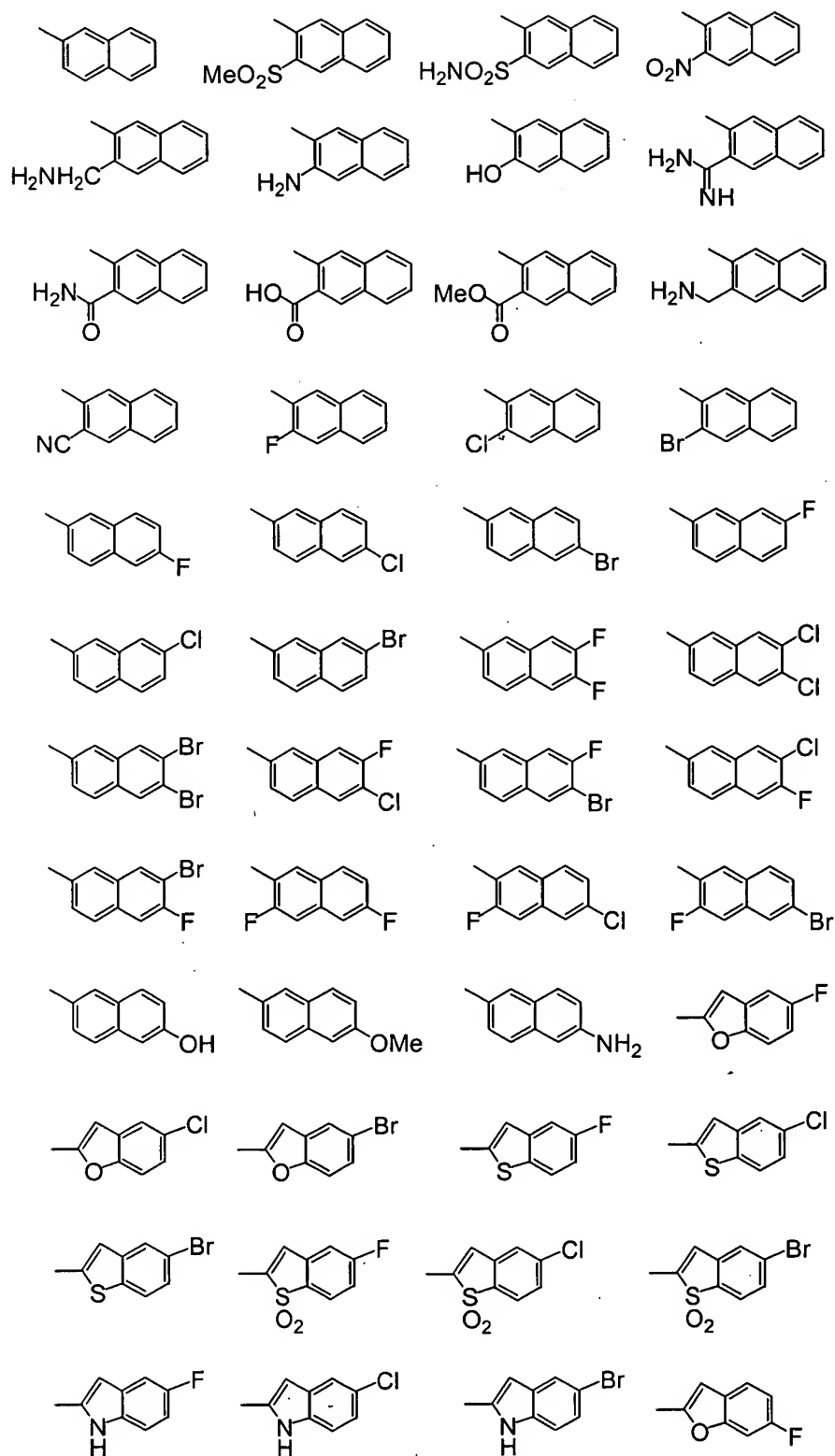
J is selected from the group consisting of:

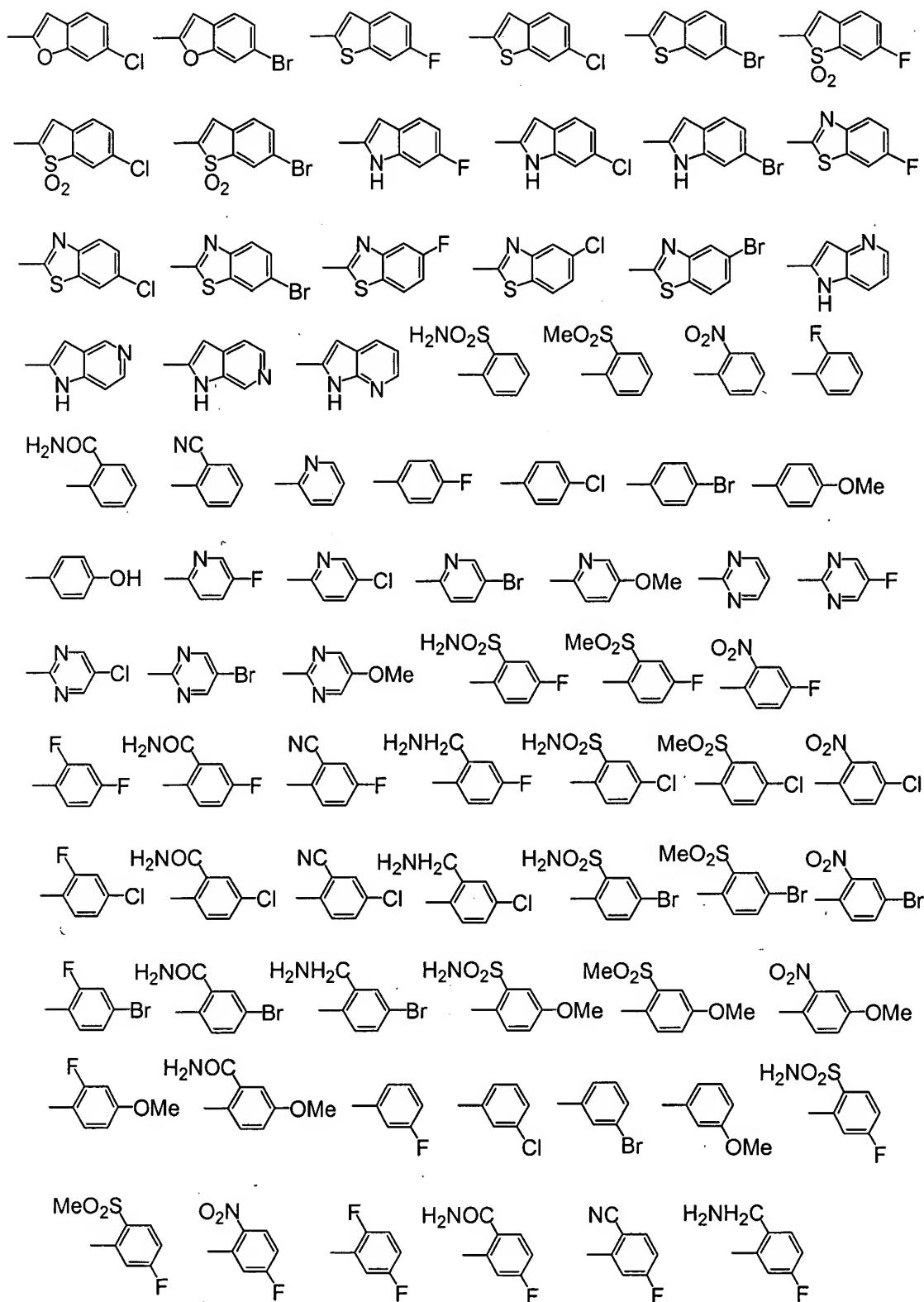
a direct link, -NH-, -O-, -S(=O)₂-, -S(=O)₂-NH-, -NH-S(=O)₂-, -C(=O)-, -NH-C(=O)- and -C(=O)-NH-;

Appl. No. not yet assigned
Amdt. dated June 20, 2003
Preliminary Amendment

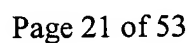
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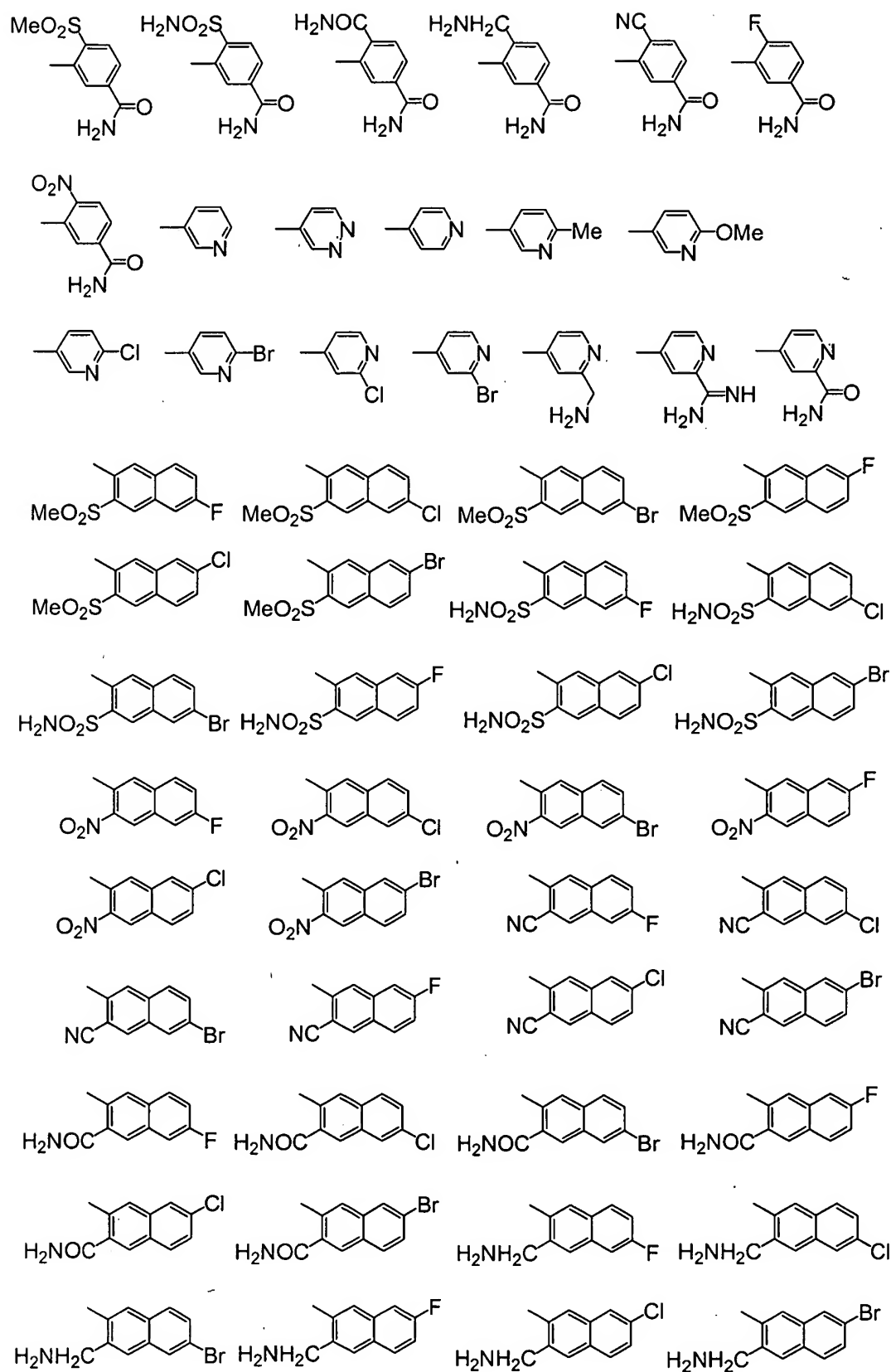
X is selected from the group consisting of:

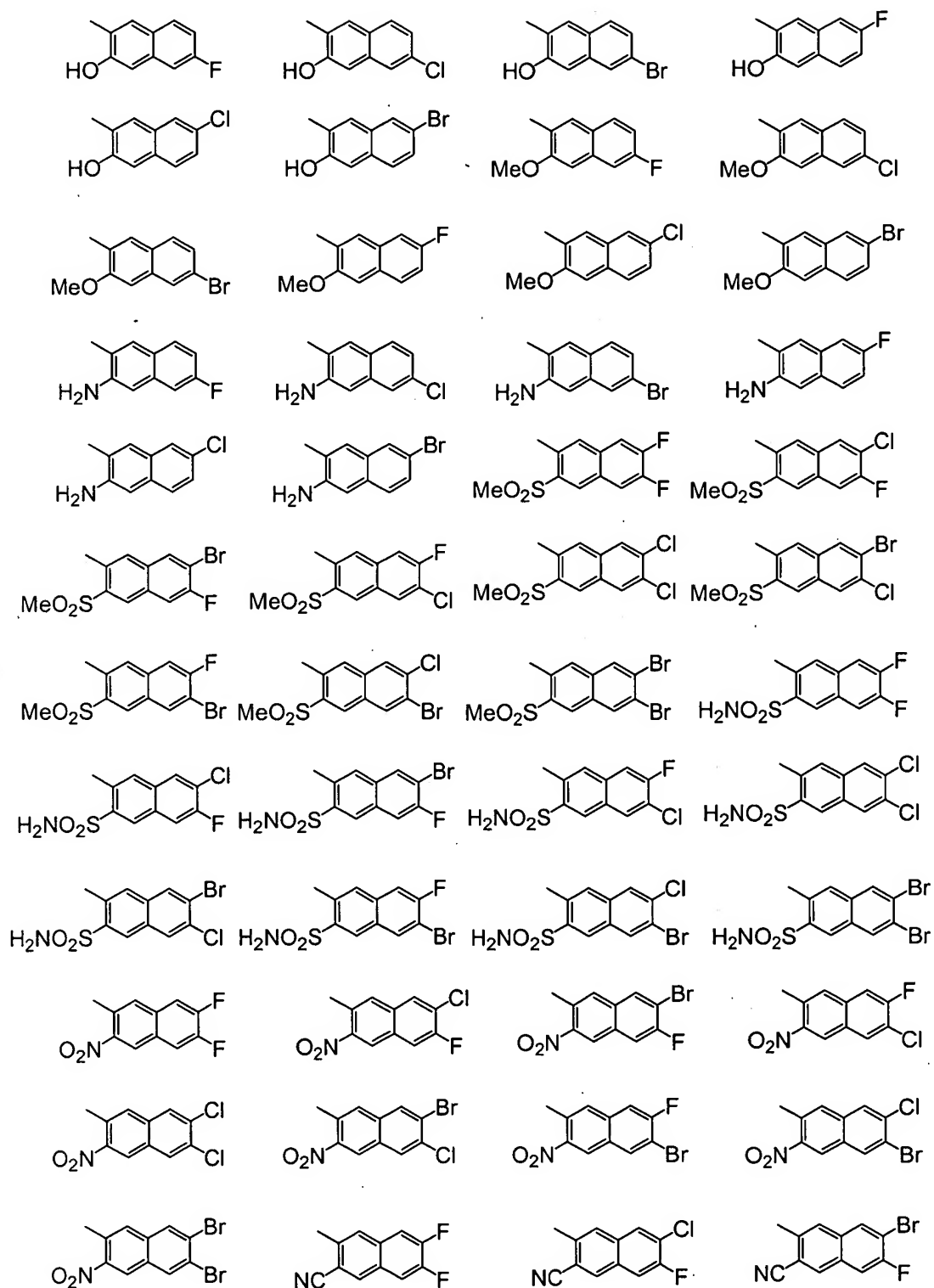


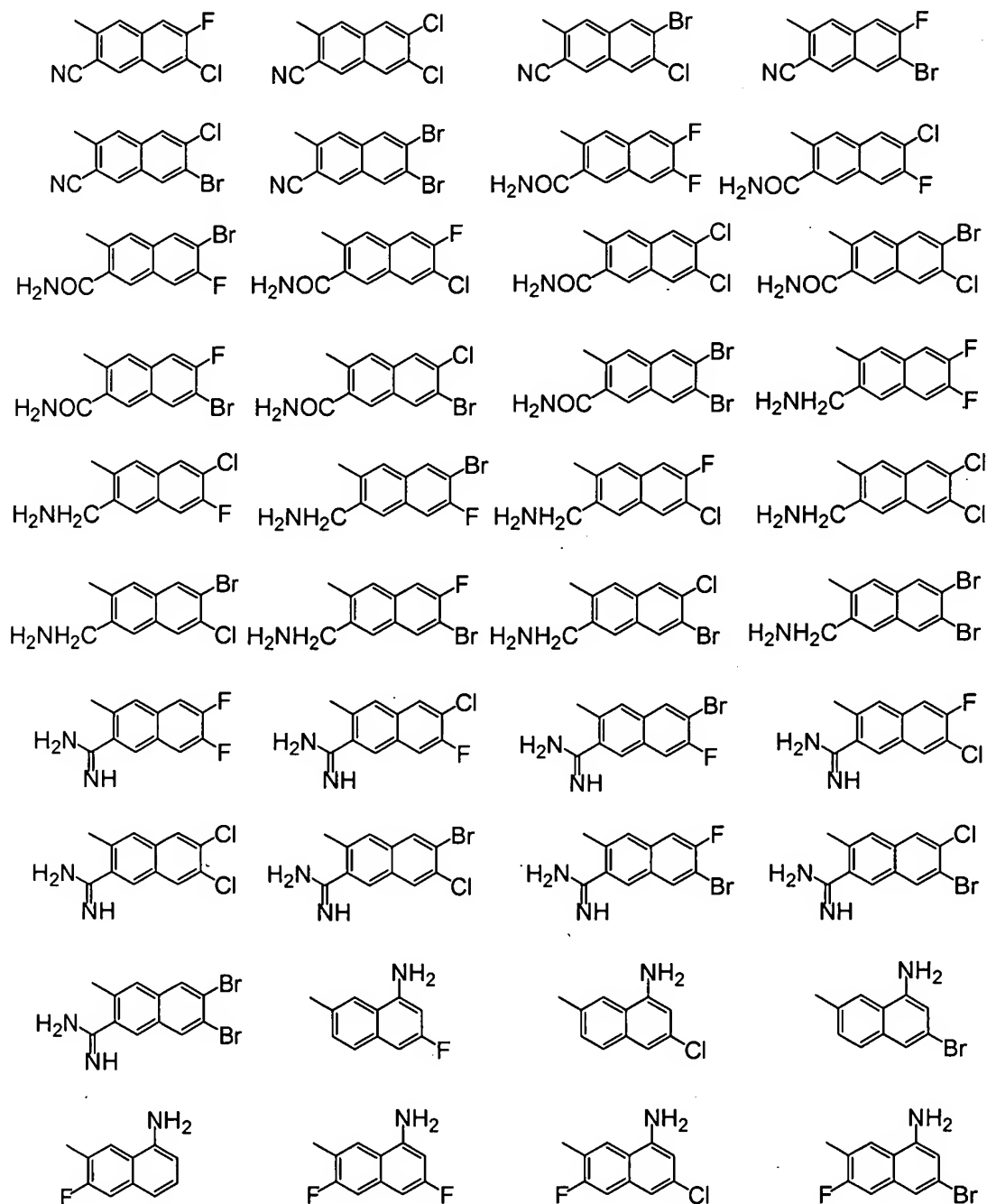


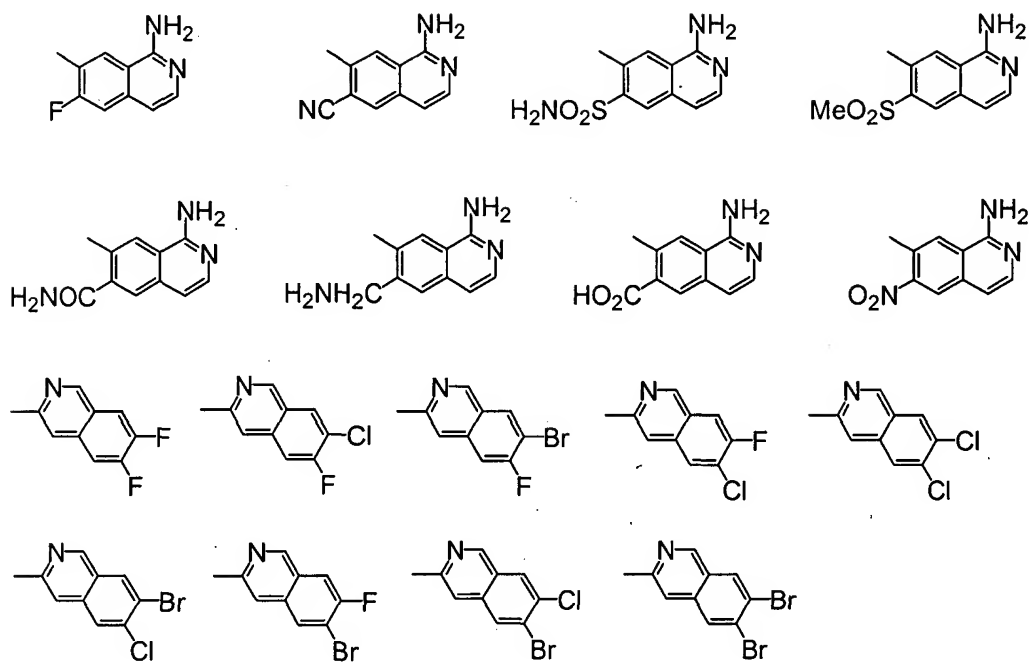
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and all pharmaceutically acceptable isomers, salts, hydrates, solvates and prodrug derivatives, thereof.

4. (Currently amended) A compound of claim 1, wherein:

A is selected from the group consisting of:

phenyl, which is substituted with 0-2 R^1 groups;

naphthyl, which is substituted with 1 R^1 group; and

a 5-7 membered aromatic or non-aromatic monocyclic heterocyclic ring, wherein the heterocyclic ring contains 1-2 heteroatoms selected from N, O and S and is substituted with 0-1 R^1 groups;

R^1 is selected from the group consisting of:

$-S(=O)_2-N(-R^2, -R^3)$, $-S(=O)_2-R^2$, $-CH_2N(-R^2, -R^3)$, $-CN$ and halo;

R² and R³ are independently selected from the group consisting of:

-H and -C₁₋₄alkyl;

Q is selected from the group consisting of:

a direct link, -C(=NH), -C(=NMe)-, -C(=O)-, -CH₂-, -NH-, and -N(-CH₃)-;

D is selected from the group consisting of:

a direct link;

phenyl, which is substituted with 0-2 R^{1a} groups; and

a 5-6 membered aromatic heterocyclic ring, wherein the heterocyclic ring contains 1-2 heteroatoms selected from N and S and is substituted with 0-1 R^{1a} groups;

R^{1a} is selected from the group consisting of:

-H and halo;

E is selected from the group consisting of:

a direct link, -NH-C(=O)- and -C(=O)-NH-;

G is selected from the group consisting of:

Pyrazole, pyrazoline, triazole and tetrazole, which are substituted with 0-2 R^{1b} groups;
and

a 5-membered aromatic heterocyclic ring, wherein the heterocyclic ring contains 2 heteroatoms selected from N, O and S and is substituted with 0-1 R^{1b} groups ~~and~~;

R^{1b} is selected from the group consisting of:

-Me, -Et, -CF₃, -C(=O)-NH₂, -NH₂, -NH-C(=O)-Me, -NH-S(=O)₂-Me, -SMe, -S(=O)₂-Me and halo;

alternatively, when two R^{1b} groups may be present on adjacent ring atoms of G and combine to form a benzene ring;

in a second alternative, one of the R^{1b} groups of G can cyclize with the NH group of E to form a 5-6 membered non-aromatic heterocyclic ring containing 1-2 nitrogen atoms and which is substituted with 0-2 C=O groups;

J is selected from the group consisting of:

a direct link, -NH-C(=O)- and -C(=O)-NH-;

X is selected from the group consisting of:

phenyl, which is substituted with 1-3 R^{1c} groups;

naphthyl, which is substituted with 0-3 R^{1c} groups;

pyridinyl, which is substituted with 1-3 R^{1c} groups; and

a 9-10 membered fused bicyclic aromatic ring, wherein the aromatic ring contains 0-2 heteroatoms selected from N and O and is substituted with 0-3 R^{1c} groups;

R^{1c} is independently selected from the group consisting of:

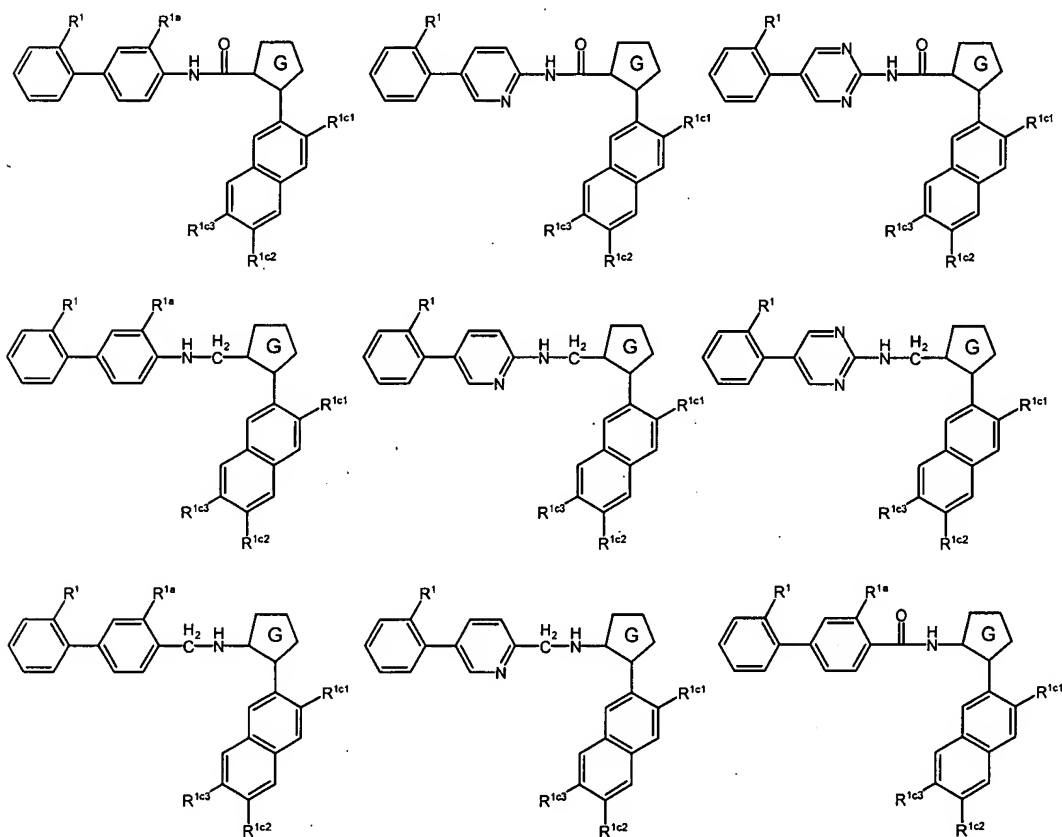
-H, halo, -Me, -CF₃, -OH, -OMe, -NH₂, -CN, -NO₂, -CH₂-R^{2c}, -C(=O)-N(-R^{2c}, -R^{3c}), -S(=O)₂-R^{2c}, -S(=O)₂-N(-R^{2c}, -R^{3c}), -S(=O)₂-OH, -C(=NH)-N(-R^{2c}, -R^{3c}), 2-imidazolin-2-yl and 1-methyl-2-imidazolin-2-yl;

R^{2c} and R^{3c} are independently selected from the group consisting of:

-H, -OH, -NH₂ and -C₁₋₄alkyl;

and all pharmaceutically acceptable isomers, salts, hydrates, solvates and prodrug derivatives, thereof.

5. (Currently amended) A compound of claim 1, selected from the group consisting of ~~The following compounds are claimed by the present invention:~~



wherein:

R^1 is selected from the group consisting of:

-SO₂NH₂, -SO₂Me, -CH₂NH₂ and -CH₂NMe₂;

R^{1a} is selected from the group consisting of:

-H, -F, -Cl and -Br;

R^{1c1} is selected from the group consisting of:

-H, -F, -Cl, -Br, -NH₂, -OH, -SO₂Me, -SO₂Et, -SO₂NH₂, -NO₂, -CH₂NH₂, -CN, -CONH₂,
and -CH₂OH;

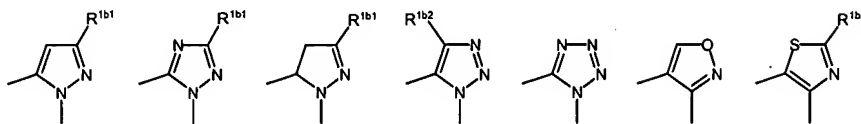
R^{1c2} is selected from the group consisting of:

-H, -F, -Cl and -Br;

R^{1c3} is selected from the group consisting of:

-H, -F, -Cl and -Br;

G is selected from the group consisting of:



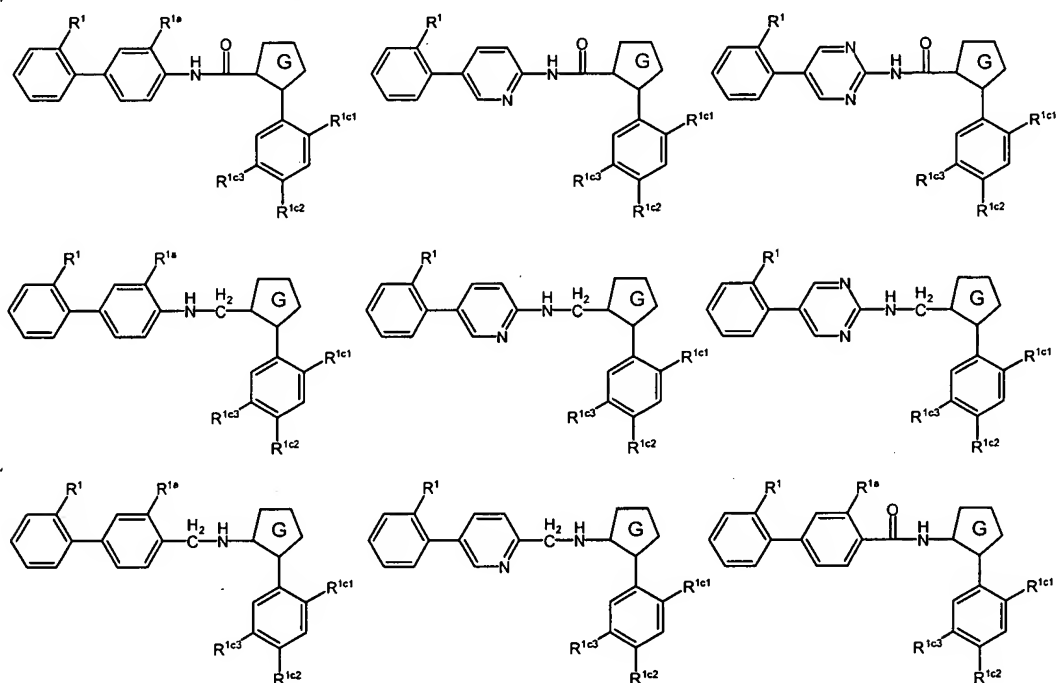
wherein:

R^{1b1} is selected from the group consisting of -H, -CH₃ and -CF₃;

R^{1b2} is selected from the group consisting of -H, -CH₃ and -CF₃; and

R^{1b3} is selected from the group consisting of -Cl, -NH₂, -CH₃ and -CF₃.

6. (Currently amended) A compound of claim 1, selected from the group consisting of ~~The following compounds are claimed by the present invention:~~



wherein :

R^1 is selected from the group consisting of:

-SO₂NH₂, -SO₂Me, -CH₂NH₂ and -CH₂NMe₂;

R^{1a} is selected from the group consisting of:

-H, -F, -Cl and -Br;

R^{1c1} is selected from the group consisting of:

-H, -F, -Cl, -Br, -NH₂, -OH, -SO₂Me, -SO₂Et, -SO₂NH₂, -NO₂, -CH₂NH₂, -CN, -CONH₂,
and -CH₂OH;

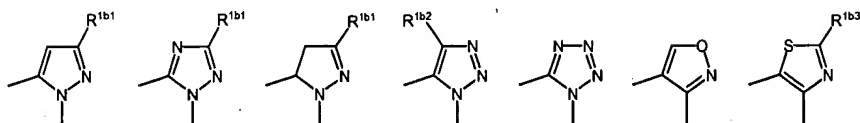
R^{1c2} is selected from the group consisting of:

-H, -F, -Cl, -Br and -OMe;

R^{1c3} is selected from the group consisting of:

-H, -F, -Cl, -Br, -OCH₃, -NH₂, -CH₂NH₂, -CONH₂, -CONHMe, **and** -CONMe₂

G is selected from the group consisting of:



wherein:

R^{1b1} is selected from the group consisting of -H, -CH₃ and -CF₃;

R^{1b2} is selected from the group consisting of -H, -CH₃ and -CF₃; **and**

R^{1b3} is selected from the group consisting of -Cl, -NH₂, -CH₃ and -CF₃.

Chemical structures 1-12 are shown, representing various substituted benzimidazole, benzothiazole, and benzoxazole derivatives. The structures are arranged in a 4x3 grid. Each structure features a central five-membered heterocyclic ring (imidazole, thiazole, or oxazole) fused to a benzene ring. This central ring is substituted with a cyclopentyl group (G) and a 2,4,6-trisubstituted pyridine ring. The substituents are labeled as R¹, R^{1a}, R^{1c1}, R^{1c2}, and R^{1c3}. The structures are numbered 1 through 12, with some structures (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12) showing different combinations of these substituents and the heterocyclic ring type.

R^1 is selected from the group consisting of:

Page 32 of 53

R^{1a} is selected from the group consisting of:

-H, -F, -Cl and -Br;

R^{1c1} is selected from the group consisting of:

-H, -F, -Cl, -Br, -CN, -CH₂NH₂, -CH₂OH, -CONH₂, -C(=NH)NH₂, -CO₂H, -CO₂Me, -SO₂Me, -SO₂NH₂, -OH, -NH₂, and -NO₂;

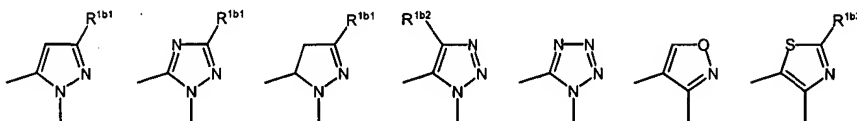
R^{1c2} is selected from the group consisting of:

-H, -F, -Cl, -Br, and -OCH₃;

R^{1c3} is selected from the group consisting of:

-H, -F, -Cl, -Br, -OCH₃, -NH₂, -CH₂NH₂, -CONH₂, -CONHMe, and -CONMe₂;

G is selected from the group consisting of:



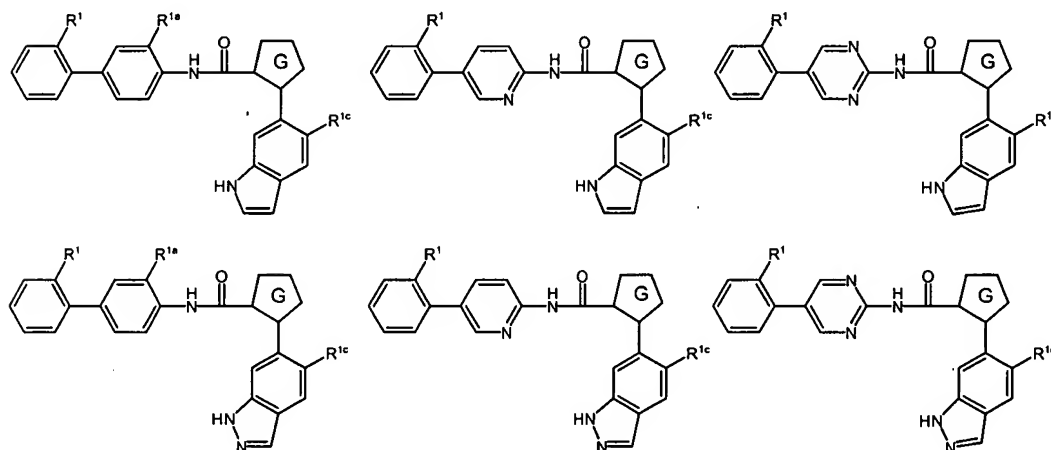
wherein:

R^{1b1} is selected from the group consisting of -H, -CH₃ and -CF₃;

R^{1b2} is selected from the group consisting of -H, -CH₃ and -CF₃; and

R^{1b3} is selected from the group consisting of -Cl, -NH₂, -CH₃ and -CF₃.

8. (Currently amended) A compound of claim 1, selected from the group consisting of The following compounds are claimed by the present invention:



wherein:

R¹ is selected from the group consisting of:

-SO₂NH₂, -SO₂Me, -CH₂NH₂ and -CH₂NMe₂;

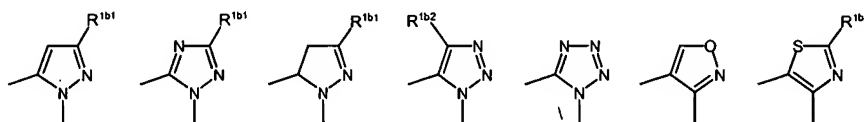
R^{1a} is selected from the group consisting of:

-H, -F, -Cl and -Br;

R^{1c} is selected from the group consisting of:

-H, -F, -Cl, -Br, -NH₂, -OH, -SO₂Me, -SO₂Et, -SO₂NH₂, -NO₂, -CH₂NH₂, -CN, -CONH₂,
and -CH₂OH;

G is selected from the group consisting of:



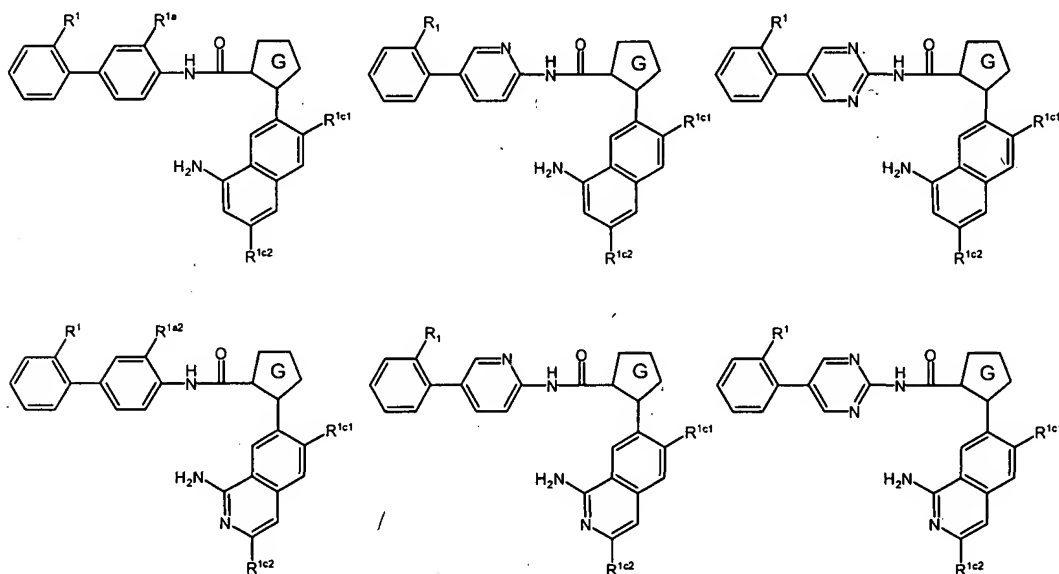
wherein:

R^{1b1} is selected from the group consisting of $-H$, $-CH_3$ and $-CF_3$;

R^{1b2} is selected from the group consisting of $-H$, $-CH_3$ and $-CF_3$; **and**

R^{1b3} is selected from the group consisting of $-Cl$, $-NH_2$, $-CH_3$ and $-CF_3$.

9. (Currently amended) **A compound of claim 1, selected from the group consisting of** ~~The following compounds are claimed by the present invention:~~



wherein:

R^1 is selected from the group consisting of:

$-SO_2NH_2$, $-SO_2Me$, $-CH_2NH_2$ and $-CH_2NMe_2$;

R^{1a} is selected from the group consisting of:

$-H$, $-F$, $-Cl$ and $-Br$;

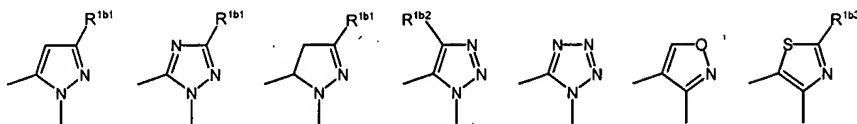
R^{1c1} is selected from the group consisting of:

-H, -F, -Cl, -Br, -NH₂, -OH, -SO₂Me, -SO₂Et, -SO₂NH₂, -NO₂, -CH₂NH₂, -CN, -CONH₂,
and -CH₂OH;

R^{1c2} is selected from the group consisting of:

-H, -F, -Cl and -Br;

G is selected from the group consisting of:



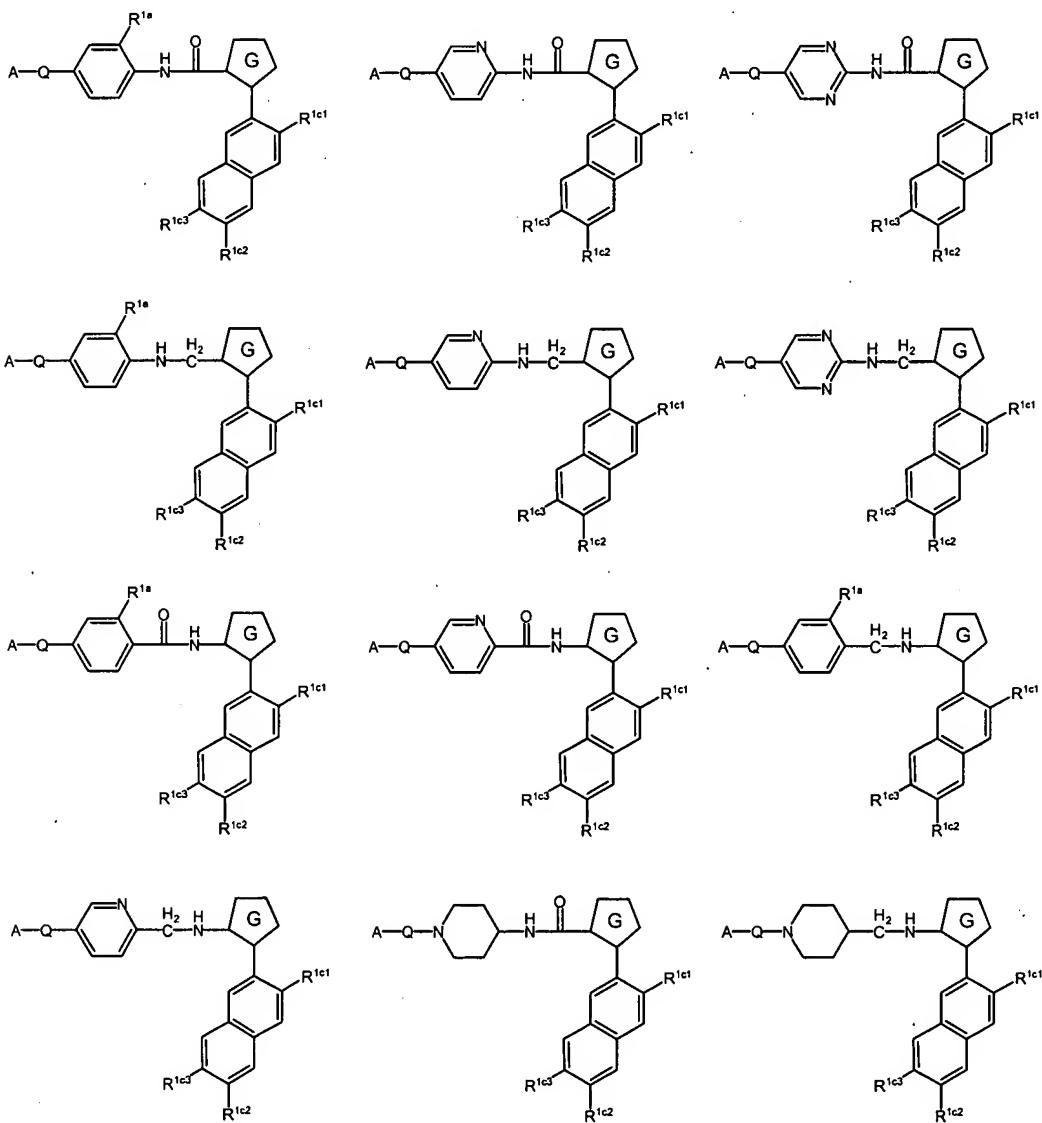
wherein:

R^{1b1} is selected from the group consisting of -H, -CH₃ and -CF₃;

R^{1b2} is selected from the group consisting of -H, -CH₃ and -CF₃; **and**

R^{1b3} is selected from the group consisting of -Cl, -NH₂, -CH₃ and -CF₃.

10. (Currently amended) A compound of claim 1, selected from the group consisting of ~~The following compounds are claimed by the present invention:~~



wherein:

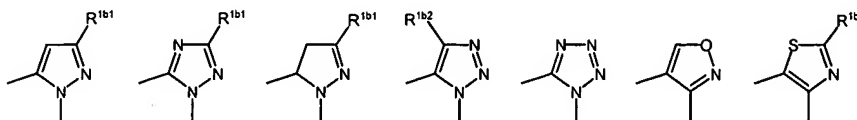
Page 38 of 53

$R^{(c)}$ is selected from the group consisting of:

R^{lc2} is selected from the group consisting of:

R^{1c3} is selected from the group consisting of:

G is selected from the group consisting of:



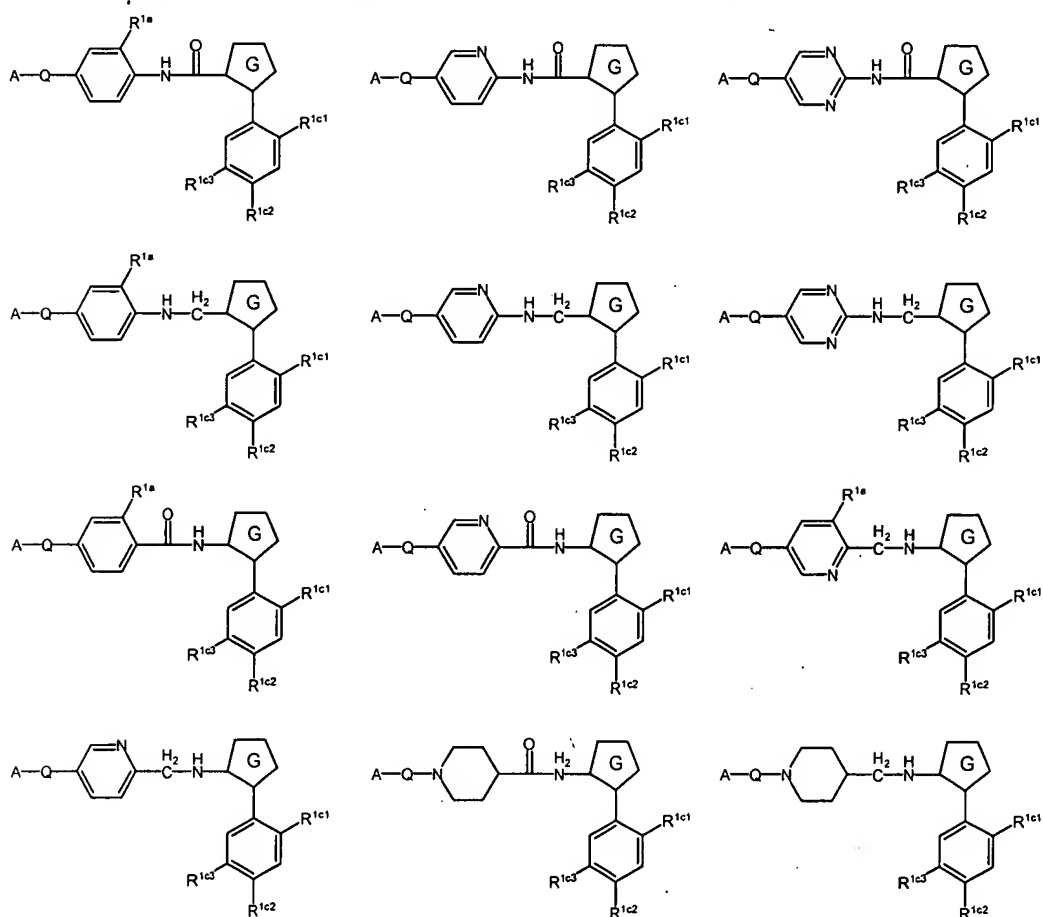
wherein:

R^{1b1} is selected from the group consisting of $-H$, $-CH_3$ and $-CF_3$;

R^{1b2} is selected from the group consisting of $-H$, $-CH_3$ and $-CF_3$; **and**

R^{1b3} is selected from the group consisting of $-Cl$, $-NH_2$, $-CH_3$ and $-CF_3$.

11. (Currently amended) **A compound of claim 1, selected from the group consisting of The following compounds are claimed by the present invention:**

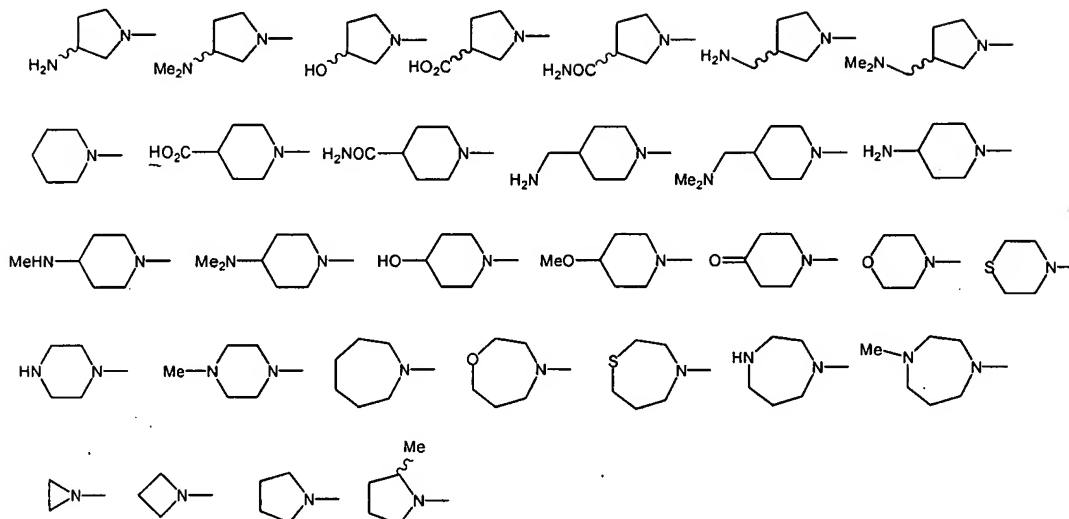


wherein:

Chemical structures of various heterocyclic compounds, including substituted pyrrolidines, piperidines, morpholines, thiomorpholines, and imidazoles, along with their corresponding functional groups (NH, N-CH₃, C=O).

Page 41 of 53

A is selected from the group consisting of:



R^{1a} is selected from the group consisting of:

-H, -F, -Cl and -Br;

R^{1b} is selected from the group consisting of:

-CH₃, -CF₃, -CH₂CH₃, -SO₂Me, -CONH₂ and -NHSO₂Me;

R^{1c1} is selected from the group consisting of:

-H, -F, -Cl, -Br, -NH₂, -OH, -SO₂Me, -SO₂Et, -SO₂NH₂, -NO₂, -CH₂NH₂, -CN, -CONH₂,
and -CH₂OH;

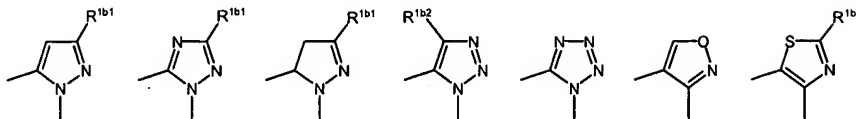
R^{1c2} is selected from the group consisting of:

-H, -F, -Cl, -Br and -OMe;

R^{1c3} is selected from the group consisting of:

-H, -F, -Cl, -Br, -OH, -OCH₃, -NH₂, -CONH₂, **and** -CH₂NH₂;

-G is selected from the group consisting of:



wherein:

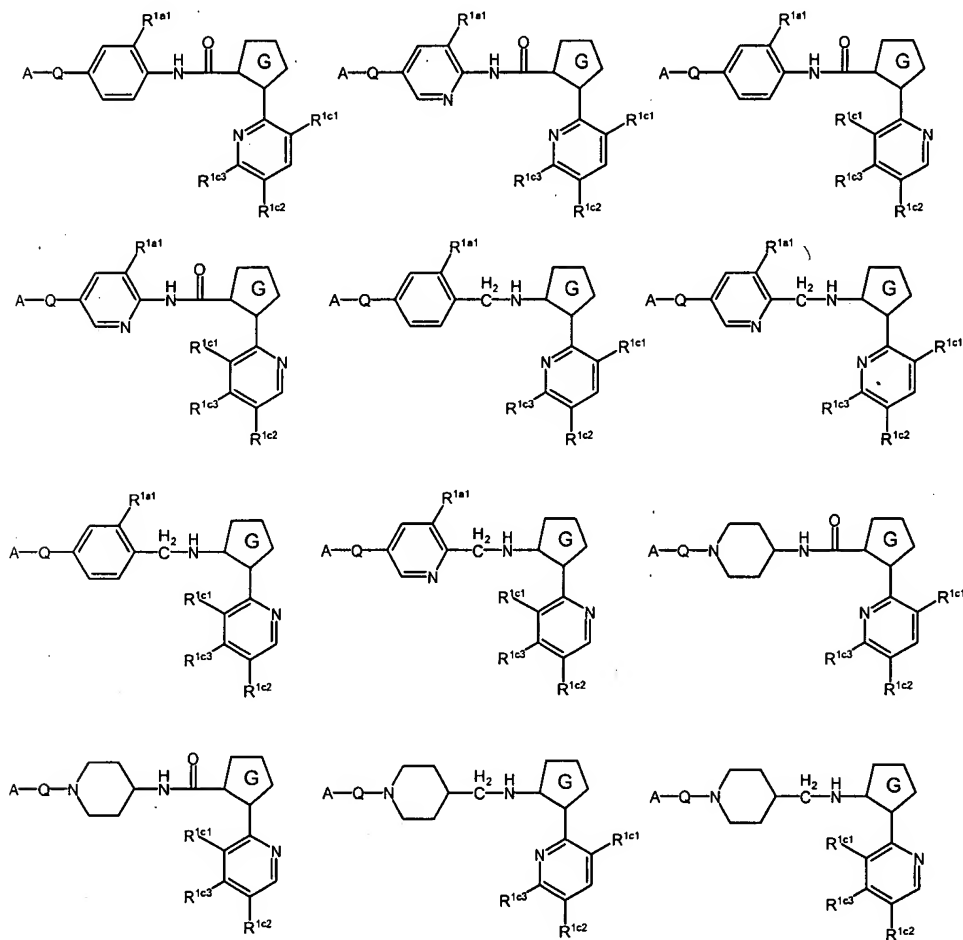
R^{1b1} is selected from the group consisting of -H, -CH₃ and -CF₃;

R^{1b2} is selected from the group consisting of -H, -CH₃ and -CF₃; **and**

R^{1b3} is selected from the group consisting of -Cl, -NH₂, -CH₃ and -CF₃.

12.-13. (Canceled)

14. (Currently amended) A compound of claim 1, selected from the group consisting of ~~The following compounds are claimed by the present invention:~~



wherein:

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Chemical structures of various heterocyclic compounds, including substituted pyrrolidines, imidazoles, pyrazoles, and triazoles, as well as their derivatives and functional groups.

Page 45 of 53

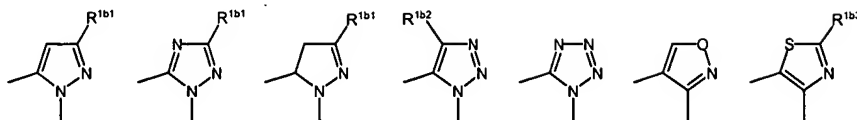
-H, -F, -Cl and -Br;

-H, -F, -Cl, -Br, -CN, -CH₂NH₂, -CH₂OH, -CONH₂, -C(=NH)NH₂, -CO₂H, -CO₂Me, -SO₂Me, -SO₂NH₂, -OH, -NH₂, and -NO₂;

-H, -F, -Cl, -Br, and -OCH₃;

-H, -F, -Cl, -Br, -OCH₃, -NH₂, -CH₂NH₂, -CONH₂, -CONHMe, **and** -CONMe₂;

G is selected from the group consisting of:



wherein:

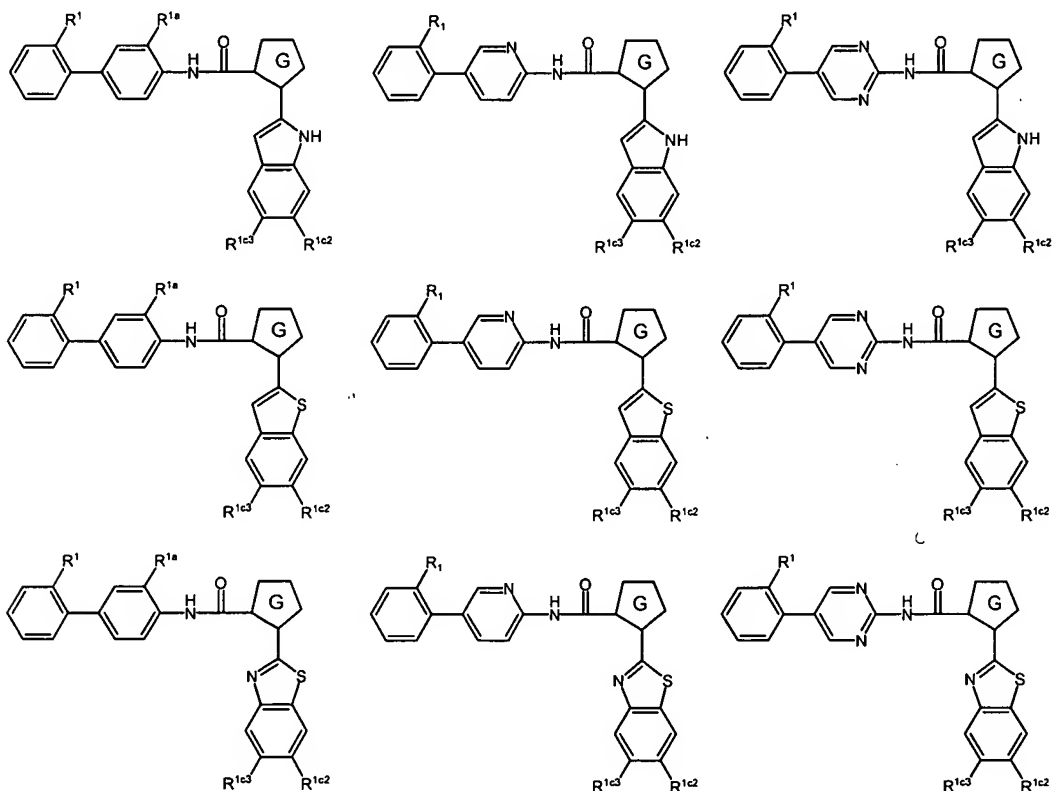
R^{1b1} is selected from the group consisting of -H, -CH₃ and -CF₃;

R^{1b2} is selected from the group consisting of -H, -CH₃ and -CF₃; **and**

R^{1b3} is selected from the group consisting of -Cl, -NH₂, -CH₃ and -CF₃.

15.-18. (Canceled)

19. (Currently amended) **A compound of claim 1, selected from the group consisting of** ~~The following compounds are claimed by the present invention:~~



wherein:

R¹ is selected from the group consisting of:

-SO₂NH₂, -SO₂Me, -CH₂NH₂ and -CH₂NMe₂;

R^{1a} is selected from the group consisting of:

-H, -F, -Cl and -Br;

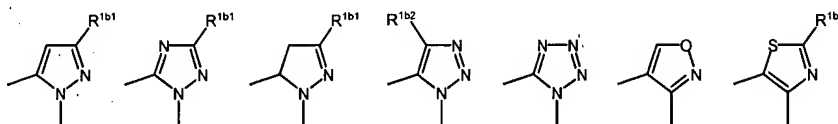
R^{1c1} is selected from the group consisting of:

-H, -F, -Cl, -Br, -NH₂, -OH, -SO₂Me, -SO₂Et, -SO₂NH₂, -NO₂, -CH₂NH₂, -CN, -CONH₂,
and -CH₂OH;

R^{1c2} and R^{1c3} are independently selected from the group consisting of:

-H, -F, -Cl and -Br;

G is selected from the group consisting of:



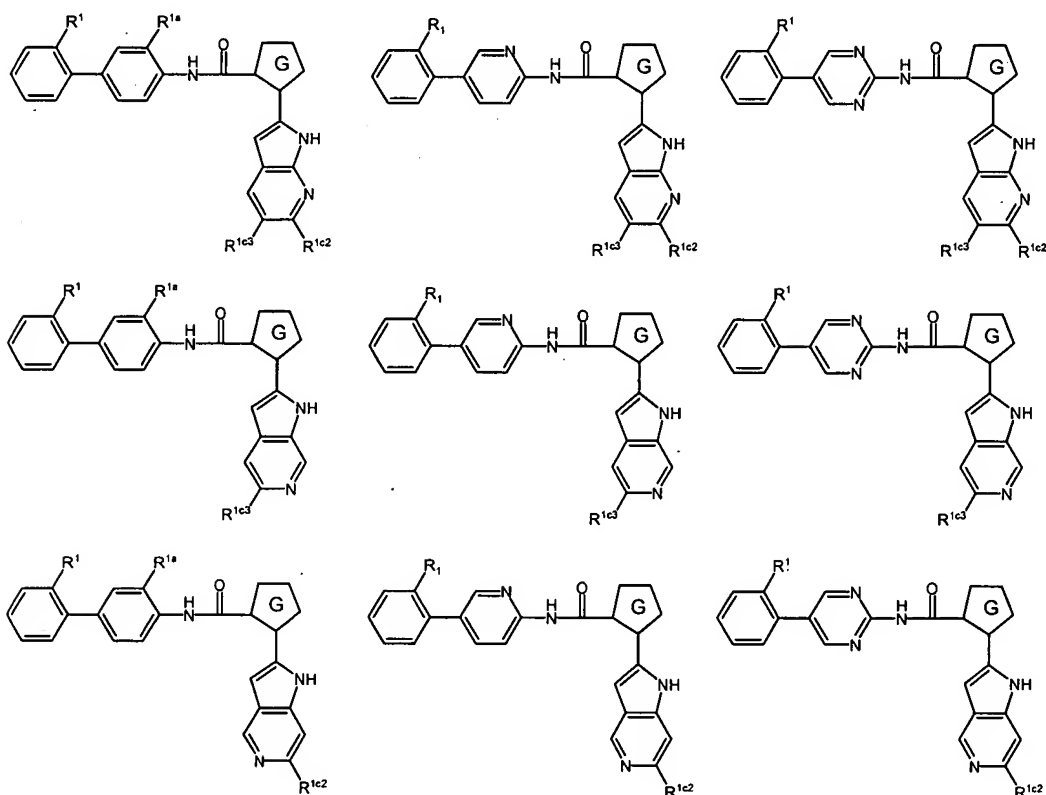
wherein:

R^{1b1} is selected from the group consisting of -H, -CH₃ and -CF₃;

R^{1b2} is selected from the group consisting of -H, -CH₃ and -CF₃; and

R^{1b3} is selected from the group consisting of -Cl, -NH₂, -CH₃ and -CF₃.

20. (Currently amended) A compound of claim 1, selected from the group consisting of The following compounds are claimed by the present invention:



wherein:

R¹ is selected from the group consisting of:

-SO₂NH₂, -SO₂Me, -CH₂NH₂ and -CH₂NMe₂;

R^{1ᵃ} is selected from the group consisting of:

-H, -F, -Cl and -Br;

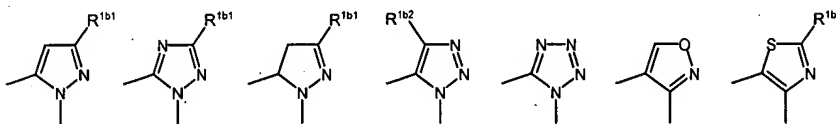
R^{1c1} is selected from the group consisting of:

-H, -F, -Cl, -Br, -NH₂, -OH, -SO₂Me, -SO₂Et, -SO₂NH₂, -NO₂, -CH₂NH₂, -CN, -CONH₂,
and -CH₂OH;

R^{1c2} and R^{1c3} are independently selected from the group consisting of:

-H, -F, -Cl and -Br;

G is selected from the group consisting of:



wherein:

R^{1b1} is selected from the group consisting of -H, -CH₃ and -CF₃;

R^{1b2} is selected from the group consisting of -H, -CH₃ and -CF₃; and

R^{1b3} is selected from the group consisting of -Cl, -NH₂, -CH₃ and -CF₃.

21. (Original) A pharmaceutical composition for preventing or treating a condition in a mammal characterized by undesired thrombosis comprising a pharmaceutically acceptable carrier and a pharmaceutically effective amount of a compound of claim 1.

22. (Original) A method for preventing or treating a condition in a mammal characterized by undesired thrombosis comprising administering to said mammal a therapeutically effective amount of a compound of claim 1.

23. (Currently amended) The method of claim 22 6, wherein the condition is selected from the group consisting of:

acute coronary syndrome, myocardial infarction, unstable angina, refractory angina, occlusive coronary thrombus occurring post-thrombolytic therapy or post-coronary angioplasty, a thrombotically mediated cerebrovascular syndrome, embolic stroke, thrombotic stroke, transient ischemic attacks, venous thrombosis, deep venous thrombosis, pulmonary embolus, coagulopathy, disseminated intravascular coagulation, thrombotic thrombocytopenic purpura, thromboangiitis obliterans, thrombotic disease associated with heparin-induced thrombocytopenia, thrombotic complications associated with extracorporeal circulation, thrombotic complications associated with instrumentation, and thrombotic complications associated with the fitting of prosthetic devices.

24. (Original) A method for inhibiting the coagulation of biological samples, comprising the step of administering a compound of claim 1.

25.-36. (Canceled)